

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Applicant	:	Fencl		
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Mail Stop Appeal Brief- Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

Dear Sir:

The following Appeal Brief is submitted pursuant to the Notice of Appeal dated July 13, 2006 for consideration by the Board of Appeals and Interferences. 37 C.F.R. § 41.37.

(i) REAL PARTY IN INTEREST

The real party in interest is Steril-Aire, Inc.

(ii) RELATED APPEALS AND INTERFERENCES

There are no applications currently being appealed that may directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(iii) STATUS OF CLAIMS

Claims 1-23 and 45-51 have been canceled. Claims 24-44 and 52 are rejected and are the subject of this appeal.

(iv) STATUS OF AMENDMENTS

No amendments were filed subsequent to the Final Office Action mailed February 15, 2006.

(v) SUMMARY OF CLAIMED SUBJECT MATTER

Independent Claim 24: A method of controlling the presence of surface and airborne microorganisms (p. 29, l. 19 – p. 30, l. 1) in an air handler having a heat transfer coil comprising a tube (p. 17, ll. 4-8; FIG. 1, 105, 100, 110, 120) and a plurality of spaced parallel fins and defining a surface (p. 18, ll. 5-7; FIG. 1, 130, 131, 135), comprising

at least intermittently energizing a germicidal lamp (p. 31, ll. 3-6) to emit distributed UVC radiation (p. 21, ll. 13-15; FIG. 3, 111, 130) wherein the germicidal lamp is energized during and after a cooling cycle of the air handler until the surface is organically clean (p. 23, ll. 1-17 and p. 26, ll. 7-9)

positioning the germicidal lamp in proximity to the heat transfer coil, wherein the intensity of the UVC radiation striking the heat transfer coil is, to a degree, independent of the distance of the germicidal lamp to the heat transfer coil

directing the UVC radiation across the coil face to the coil's tube and fins (p. 19, ll. 9-21, p. 20, ll. 1-2, FIG. 1, 111, 130, 130a, FIG. 2, 111, 120, 130)

reflecting and directing the ultraviolet radiation by the coil's tube and the fins-throughout the coil (p. 23, ll. 15-17), thereby increasing the flux density of the ultraviolet radiation and the dosage of the radiation applied to airborne microorganisms and microorganisms carried on the surface (p. 21, ll. 6-11, FIG. 5, ll. 111, 113a, 131, 135, 140).

Independent Claim 29: A method of maintaining cleanliness of a heat transfer system in an air handling system through UVC irradiation (p. 29, l. 18 – p. 30, l. 17), wherein during operation of the air handling system, organic matter accumulates upon an internal surface of the heat transfer system (p. 24, l. 15 – p. 27, l. 2, p. 36, ll. 3-10), the accumulated organic matter thereby degrading the performance of the heat transfer system, the method comprising

at least intermittently energizing a germicidal lamp to emit distributed UVC radiation (p. 21, ll. 13-15; FIG. 3, 111, 130) wherein the germicidal lamp is energized during and after a cooling cycle of the air handling system until the internal surface of the heat transfer system is organically clean (p. 23, ll. 1-17, p. 26, ll. 7-9)

positioning the germicidal lamp in proximity to the internal surface, wherein the intensity of the UVC radiation striking the internal surface is, to a degree, independent of the distance of the germicidal lamp to the internal surface

directing the UVC radiation at the internal surface of the heat transfer system (p. 19, ll. 9-21, p. 20, ll. 1-2, FIG. 1, 111, 130, 130a, FIG. 2, 111, 120, 130).

Independent Claim 35: A method of maintaining cleanliness of a drain pan of a heat transfer system through UVC irradiation (p. 29, l. 18 – p. 30, l. 17), wherein during normal use organic matter accumulates upon a surface of the drain pan, the accumulated organic matter thereby degrading the performance of the drain pan (p. 24, l. 15 – p. 27, l. 2, p. 36, ll. 3-10), the method comprising

at least intermittently energizing a germicidal lamp to emit distributed UVC radiation (p. 21, ll. 13-15; FIG. 3, 111, 130) wherein the germicidal lamp is energized during and after a cooling cycle of the heat transfer system until the surface of the drain pan is organically clean (p. 23, ll. 1-17, p. 26, ll. 7-9)

positioning the germicidal lamp in proximity to the drain pan, wherein the intensity of the UVC radiation striking the drain pan is, to a degree, independent of the distance of the germicidal lamp to the drain pan

directing the UVC radiation at the drain pan (p. 19, ll. 9-21, p. 20, ll. 1-2, FIG. 1, 111, 130, 130a, FIG. 2, 111, 120, 130).

Independent Claim 39: A method of maintaining cleanliness an apparatus through UVC irradiation (p. 29, l. 18 – p. 30, l. 17), wherein during normal use organic matter accumulates upon a surface of the apparatus (p. 24, l. 15 – p. 27, l. 2, p. 36, ll. 3-10), the method comprising

providing a germicidal lamp

positioning the germicidal in proximity to the apparatus, wherein the intensity of the UVC radiation striking the apparatus is, to a degree, independent of the distance of the germicidal lamp to the apparatus (p. 19, ll. 9-21, p. 20, ll. 1-2, FIG. 1, 111, 130, 130a, FIG. 2, 111, 120, 130)

at least intermittently energizing the germicidal lamp to emit substantially UVC radiation (p. 21, ll. 13-15; FIG. 3, 111, 130) wherein the germicidal lamp is energized during and after a cooling cycle of the apparatus until the surface is substantially clean of the accumulated organic matter (p. 23, ll. 1-17, p. 26, ll. 7-9)

directing the UVC radiation at the surface to effecting cleaning of the accumulated organic matter on the surface of the apparatus (p. 19, ll. 9-21, p. 20, ll. 1-2, FIG. 1, 111, 130, 130a, FIG. 2, 111, 120, 130).

(vi) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 24-26, 29-33, 35-36, 39-40, 43, 44 and 52 were rejected under 35 U.S.C. § 102(b) as being anticipated by Hollander (USP 5,334,347).

Claims 27-28, 34, 37, 38, 41-42 and 44 were rejected under 35 U.S.C. § 103 as being obvious from Hollander (USP 5,334,347).

(vii) ARGUMENT

This patent application was filed on August 25, 2003 and has been carefully examined for nearly three and a half years. In general, when examining a patent application, it is important to properly characterize the prior art in order to determine whether the applicant is entitled to a patent on the claimed subject matter. When characterizing the prior art reference, the examiner must determine both what is expressly taught and what is inherently taught by the prior art. In this case, in construing the prior art, the Examiner has improperly concluded that the prior art discloses subject matter which is neither expressly *nor inherently* taught by the prior art. As such, the claims are patentable over the cited reference. Therefore, the rejections should be reversed and this patent application, which has been pending for nearly three and a half years, should be allowed to issue.

A. Rejection of Claims 24-26, 29-33, 35-36, 39-40, 43, 44 and 52 as anticipated by Hollander

Hollander is directed to an electric discharge device capable of emitting a large quantity of ultraviolet rays, while also providing a long useful operating life over a wide temperature range (Hollander, 3: 55-57). Hollander's electric discharge device includes a spacer and a base that define a cooling region inside the electric discharge device (Hollander 5:54-56). Hollander's spacer causes a convection current between the cooling region and a radiation region (Hollander 5:57-58, and 6:7-9), resulting in extended life of the germicidal lamp.

To anticipate a claim, the reference must teach each and every element of the claim. MPEP § 2131 provides:

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. [. . .] The identical invention must be shown in as complete detail as is contained in the ... claim.

Claim 24

Claim 24 includes at least one limitation not disclosed, taught or suggested by Hollander. Claim 24 recites, "at least **intermittently** energizing a germicidal lamp to emit distributed UVC radiation" (emphasis added). In the Final Rejection dated 2/15/2006, the Examiner asserted that the claimed limitation, "at least **intermittently**", was *inherently* taught by Hollander. (Office action, page 3). However, Hollander neither expressly, nor *inherently*, teaches the claimed limitation.

In *Continental Can Co. v. Monsanto Co.*, 948 F.2d 1264, 1268 (Fed. Cir. 1991), the Federal Circuit held:

"A prior art reference may anticipate without disclosing a feature of the claimed invention if that missing characteristic is *necessarily present*, or inherent, in the single anticipating reference." (emphasis added)

In *Continental Can Co.*, the patent at issue claimed a plastic bottle with the limitation "characterized by the feature that the ribs are hollow."¹ The alleged infringer argued that the patent

¹ *Continental Can Co.* at 1266.

claims were anticipated by a prior art reference which disclosed plastic ribs, but did not specify whether the ribs were hollow or solid. The Federal Circuit held that summary judgment regarding the anticipation issue was improper since it was uncertain whether the prior art would *necessarily* produce hollow ribs as claimed by the patentee. Thus, the Federal Circuit explained that inherency “may not be established by probabilities or possibilities. The mere fact that a certain thing *may* result from a given set of circumstances is not sufficient.”² In other words, the inherent limitation must be “necessarily present” in the prior art reference.³

This case is very similar to the *Continental Can Co.* case. Here, as in *Continental Can Co.*, the prior art reference does not inherently anticipate the claimed limitation. Specifically, the “at least intermittently” limitation is not *necessarily present* in Hollander’s teachings. Instead, Hollander appears to teach a germicidal lamp which stays on all the time. For example, Hollander expressly states that the high frequency “allows the mercury in the tube to fire and **stay on at all times** without requiring high start-up temperatures.” (Hollander, 4:47-50). In addition, Hollander’s “preferred embodiment” is directed to **continuous** radiation (Hollander, 4:44-50). As such, nothing in Hollander teaches or suggests anything except “continuous” radiation. Therefore, Hollander teaches that **continuous** radiation, and not anything *but continuous* radiation, is *necessarily present* in its claimed invention.

However, the Examiner asserted that Hollander’s continuous radiation *inherently* discloses the claimed “at least intermittently” limitation (see Office Action mailed 02/15/2006, page 3, lines 9-13). In addition, the Examiner admitted that Hollander discloses using radiation on the coil continuously (Office action, page 4, lines 13-14). However, as explained above, Hollander discloses only continuous radiation. As such, the Examiner improperly concluded that Hollander *inherently* taught that the limitation, “at least intermittently”, was *necessarily present* in its disclosure.

In contrast, in this patent application, the claims when read in light of the specification indicate that the “at least intermittently” should be construed and limited to mean “intermittently” and not “continuous”. In *Phillips v. AWH Corp.*, 415 F. 3d 1303, 1315 (Fed. Cir. 2005) (en banc),

² *Continental Can Co.* at 1269.

³ *Continental Can Co.* at 1268.

the Federal Circuit held that the claims “must be read in view of the specification, of which they are a part.” For example, the only embodiment disclosed in this patent application teaches the user to first use the germicidal lamp for 24 hours a day until the surfaces are organically clean, and then use the germicidal lamp “at least **intermittently** as required to maintain the cleanliness and pressure drop of the heat exchanger” (see Specification, p. 31, ll. 3-6). As repeatedly acclaimed in the Specification, an object of the claimed invention is to save energy. Interpreted fairly, in view of the Specification, the “at least intermittently” should be construed and limited to mean “intermittently” and not “continuous”. Accordingly, when construing the claims in light of the specification it is clear that the “at least intermittently” limitation is not necessarily present in an invention disclosing **continuous** radiation. As such, as Hollander’s teachings are limited to a disclosure with “continuous” radiation, it does not *inherently* anticipate the “at least intermittently” claimed limitation.

Therefore, claim 24 is patentable over Hollander as all of the limitations recited in claim 24 are not taught, either expressly or inherently, by Hollander. As such, it is respectfully requested that the anticipation rejection of claim 24 be reversed.

Claims 29, 35, and 39

To the extent that independent claims 29, 35 and 39 include the similar limitation as that recited in claim 24, namely the “at least intermittently” limitation, claims 29, 35 and 39 are patentable over Hollander for the same reasons claim 24 is patentable over Hollander. Accordingly, it is respectfully requested that the anticipation rejection of claims 29, 35 and 39 be reversed.

Claims 25-26, 52, 30-33, 36, and 40, 43-44

By virtue of their respective dependence on claims 24, 29, 35 and 29, claims 25-26, 52, 30-33, 36, and 40, 43-44 are not anticipated by Hollander. Therefore, it is respectfully requested that the rejection be reversed.

B. Rejection of Claims 27-28, 34, 37, 38, 41-42 and 44 as obvious in view of Hollander

“To establish a *prima facie* case of obviousness, [. . .] the prior art reference (or references when combined) must teach or suggest all the claim limitations.” *MPEP* 706.02(j).

Claims 27-28, 34, 37, 38, 41-42 and 44 are dependent claims and thus inherit the limitations of the claims from which they depend. Claims 27-28, 34, 37, 38, 41-42 and 44 are respectively dependent from claims 24, 29, 35, and 39. As such, these claims inherit the limitation “at least intermittently” from independent claims 24, 29, 35 and 39.

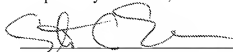
As stated above regarding the anticipation rejection for claims 24, 29, 35, and 39, Hollander does not teach at least one of the claimed limitations, namely the “at least intermittently” limitation. Therefore, by virtue of their dependency on claims 24, 29, 35 and 39 respectively, claims 27-28, 34, 37, 38, 41-42 and 44 are patentable over Hollander. As such, it is respectfully requested that the obviousness rejection be reversed.

CONCLUSION AND RELIEF

In view of the foregoing, it is believed that all claims patentably define the subject invention over the prior art of record and are in condition for allowance. The undersigned requests that the Board overturn the rejection of all claims and hold that all of the claims of the above referenced application are allowable.

Date: January 11, 2007

Respectfully submitted,



Steven C. Sereboff, Reg. No. 37,035

SoCal IP Law Group LLP
310 N. Westlake Blvd., Suite 120
Westlake Village, CA 91362
Telephone: 805/230-1350
Facsimile: 805/230-1355
email: info@socalip.com

(viii) CLAIMS APPENDIX

The claims involved in this Appeal are as follows:

24. A method of controlling the presence of surface and airborne microorganisms in an air handler having a heat transfer coil comprising a tube and a plurality of spaced parallel fins and defining a surface, comprising

at least intermittently energizing a germicidal lamp to emit distributed UVC radiation wherein the germicidal lamp is energized during and after a cooling cycle of the air handler until the surface is organically clean

positioning the germicidal lamp in proximity to the heat transfer coil, wherein the intensity of the UVC radiation striking the heat transfer coil is, to a degree, independent of the distance of the germicidal lamp to the heat transfer coil

directing the UVC radiation across the coil face to the coil's tube and fins

reflecting and directing the ultraviolet radiation by the coil's tube and the fins-throughout the coil, thereby increasing the flux density of the ultraviolet radiation and the dosage of the radiation applied to airborne microorganisms and microorganisms carried on the surface.

25. The method of controlling the presence of surface and airborne microorganisms in an air handler of claim 24 wherein said reflecting and directing of the ultraviolet radiation received by the coil and the fins is affected by the reflectivity of ultraviolet radiation from the materials from which the fins are fabricated, thereby increasing the flux density of said radiation.

26. The method of controlling the presence of surface and airborne microorganisms in an air handler of claim 24 wherein said reflecting and directing of the ultraviolet radiation reflected from the fins continues until said radiation is absorbed, thereby increasing the dosage of radiation applied.

27. The method of controlling the presence of surface and airborne microorganisms in an air handler of claim 24 wherein the germicidal tube emits ultraviolet radiation substantially at 253.7 nm and generates an insignificant quantity or less of ozone.

28. The method of controlling the presence of surface and airborne microorganisms in an air handler of claim 24 wherein the surface is disposed in an environment having a temperature below 58° F.

29. A method of maintaining cleanliness of a heat transfer system in an air handling system through UVC irradiation, wherein during operation of the air handling system, organic matter accumulates upon an internal surface of the heat transfer system, the accumulated organic matter thereby degrading the performance of the heat transfer system, the method comprising

at least intermittently energizing a germicidal lamp to emit distributed UVC radiation wherein the germicidal lamp is energized during and after a cooling cycle of the air handling system until the internal surface of the heat transfer system is organically clean

positioning the germicidal lamp in proximity to the internal surface, wherein the intensity of the UVC radiation striking the internal surface is, to a degree, independent of the distance of the germicidal lamp to the internal surface

directing the UVC radiation at the internal surface of the heat transfer system.

30. The method of maintaining cleanliness of a heat transfer system in an air handling system through UVC irradiation of claim 29, the heat transfer system comprising a heat exchanger, the method further comprising reflecting and directing the UV radiation by the heat exchanger, thereby increasing the distribution and flux density of the UV radiation and the dosage of the radiation applied to the accumulated organic matter.

31. The method of maintaining cleanliness of a heat transfer system in an air handling system through UVC irradiation of claim 29 wherein the reflecting and directing of the UV radiation received by the heat exchanger is effected by the reflectivity of UV radiation from the materials from which the heat exchanger is fabricated, thereby increasing the flux density of the radiation.

32. The method of maintaining cleanliness of a heat transfer system in an air handling system through UVC irradiation of claim 29 wherein the air handling system comprises a cooling system.

33. The method of maintaining cleanliness of a heat transfer system in an air handling system through UVC irradiation of claim 29 wherein the directing of the UVC radiation received by the surface of the heat transfer system is effected by the reflectivity of ultraviolet radiation from the materials from which the heat transfer system is fabricated, thereby increasing the flux density of the radiation.

34. The method of maintaining cleanliness of a heat transfer system in an air handling system through UVC irradiation of claim 29 wherein the surface of the heat transfer system is disposed in an environment having a temperature below 58° F.

35. A method of maintaining cleanliness of a drain pan of a heat transfer system through UVC irradiation, wherein during normal use organic matter accumulates upon a surface of the drain pan, the accumulated organic matter thereby degrading the performance of the drain pan, the method comprising

at least intermittently energizing a germicidal lamp to emit distributed UVC radiation wherein the germicidal lamp is energized during and after a cooling cycle of the heat transfer system until the surface of the drain pan is organically clean

positioning the germicidal lamp in proximity to the drain pan, wherein the intensity of the UVC radiation striking the drain pan is, to a degree, independent of the distance of the germicidal lamp to the drain pan

directing the UVC radiation at the drain pan.

36. The method of maintaining cleanliness of a drain pan through UVC irradiation of claim 35 wherein the directing of the UVC radiation received by the drain pan is effected by the reflectivity of ultraviolet radiation from the materials from which the drain pan is fabricated, thereby increasing the flux density of the radiation.

37. The method of maintaining cleanliness of a drain pan through UVC irradiation of claim 35, wherein the germicidal lamp emits ultraviolet radiation substantially at 253.7 nm and generates an insignificant quantity or less of ozone.

38. The method of maintaining cleanliness of a drain pan through UVC irradiation of claim 35 wherein the surface of the drain pan is disposed in an environment having a temperature below 58° F.

39. A method of maintaining cleanliness an apparatus through UVC irradiation, wherein during normal use organic matter accumulates upon a surface of the apparatus, the method comprising
providing a germicidal lamp
positioning the germicidal in proximity to the apparatus, wherein the intensity of the UVC radiation striking the apparatus is, to a degree, independent of the distance of the germicidal lamp to the apparatus

at least intermittently energizing the germicidal lamp to emit substantially UVC radiation wherein the germicidal lamp is energized during and after a cooling cycle of the apparatus until the surface is substantially clean of the accumulated organic matter

directing the UVC radiation at the surface to effecting cleaning of the accumulated organic matter on the surface of the apparatus.

40. The method of maintaining cleanliness of a surface through UVC irradiation of claim 39 wherein the directing of the UVC radiation is effected by the reflectivity of ultraviolet radiation from the materials from which the surface is fabricated, thereby increasing the flux density of the radiation.

41. The method of maintaining cleanliness of a surface through UVC irradiation of claim 39 wherein the germicidal lamp emits ultraviolet radiation substantially at 253.7 nm and generates an insignificant quantity or less of ozone.

42. The method of maintaining cleanliness of a surface through UVC irradiation of claim 39 wherein the surface of the apparatus is disposed in an environment having a temperature below 58° F.

43. The method of maintaining cleanliness of a surface through UVC irradiation of claim 39 further comprising exposing the surface to cold, moving air.

44. The method of controlling the presence of surface and airborne microorganisms in an air handler of claim 24, wherein at least $716 \mu\text{W}/\text{cm}^2$ of UVC radiation is striking a leading edge of the fins and a magnitude of least 60% of the at least $716 \mu\text{W}/\text{cm}^2$ of UVC radiation is striking a farthest point of the heat transfer coil from the leading edge.

52. The method of controlling the presence of surface and airborne microorganisms in an air handler of claim 24, wherein killing of microorganisms carried on the surface with the UVC radiation reduces the concentrations of airborne volatile organic compounds produced by the microorganisms carried on the surface.

(ix) RELATED PROCEEDINGS APPENDIX

Since there are no applications currently being appealed that may directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal, there is no relevant information to identify.